Transgender Voice Therapy and Treatment

For the male to female transsexual acquiring a female voice which is convincing, even over the telephone, can be one of the most difficult aspects of changing gender role. Speech therapy is a very important part of the gender reassignment package and may or may not be available through medical referral. This information sheet does not make any recommendations or comments on the relative benefits of different ways of changing the voice such as surgery and re-education through speech therapy. The following three articles report on different approaches to the subject.

1) Voice Surgery for Male to Female Transsexuals by Selina of Newcastle upon Tyne (575). First Published in GEMSNEWS No. 24

This is an area of treatment which is sadly neglected and lacking in the UK and about which there is very little reliable information even amongst professional advisers. I am very surprised that so little priority and importance is placed on having a really acceptable female voice. I have found that whilst I can be accepted as female in personal contact (people generally accept what they see) the telephone is the big problem. As I use the phone a great deal for my business, it is a thorough nuisance having to correct wrong gender assumption umpteen times every day.

After much research I discovered two places where the procedure known as "cricothyroid approximation" is undertaken. One is in Beverly Hills, California, USA and the other is Amsterdam, Holland. I know people who have been to both places. The biggest problem with California is the expense both of the treatment and of travel, hotels, etc. Dr Toby Mayer who does this work has been doing it for a considerable number of years and is thus very experienced. I was quoted $7,000 (approx £4,600) for the surgery which included a reduction of the thyroid cartilage (Adam's Apple). In Amsterdam a consultation with Prof. H.F. Mahieu to see if surgery was feasible cost approx 200 Guilders (£180) and surgery about 3,000 guilders (£1,200). Having decided on this route and having undergone surgery there, I am in a position to describe what happened to me.

"The initial consultation took most of one day and included meeting with Prof. Mahieu to find out about the procedure and for him to find out about me. He told me that it was an inexact science and that everyone responded differently. Very much in my favour was that I have never smoked and I drink very little. On the deficit side was my age but Prof Mahieu said that I seemed very good for my years and so this was hopefully not a problem. In laymen’s terms what is done is that the hard sections of cartilage, which are separated by soft tissue, are pulled together with stitches thereby putting extra tension on the vocal chords and producing a higher pitch than before.

This causes the thyroid cartilage (Adam's Apple) to become more prominent and therefore necessitates its reduction, known as a tracheal shave. This is still done at the same time as the pitch raising surgery. Physical examination of ears and throat was followed by photographs of throat, X-ray of throat, blood tests (both for blood group and to check for HIV). Also a phonetogram was taken to record my vocal pitch prior to treatment. It was explained to me that patients must have completed their gender re-assignment before voice surgery can be considered. I was then given an appointment for surgery some months ahead of the consultation date. This interval is usually about six months. The surgery is done on

an out-patient basis with return for check-up two days later and again at three months and one year later to monitor results. If at check up it is found that insufficient pitch rise has been maintained, apparently a11 is not lost.

There is a second stage procedure and even a third stage which can be applied should it be deemed necessary. The second stage consists of an endoscopical laryngeal procedure creating a web in the anterior or front part of the glottis. This procedure results in a reduction of the length over which the vocal folds can vibrate so the vocal folds form the web. Negative side effects such as hoarseness and breathiness are said to be possible in patients with a laryngeal web. The stage three procedure which is regarded as only to be undertaken as an absolute last resort consists of scarification and mass reduction of the vocal fold mucosa by CO2 laser vaporisation. This can result in a deterioration of the voice quality which is why it is a last resort.

Before describing the actual treatment I received, let me say that there is nothing to be afraid of. Dr Mahieu and his staff were extremely efficient and kind using most impressive up-to-date facilities. I really suffered nothing that I would describe as pain - only discomfort and no hint of sickness. At this point, I should say perhape that I seem to have a fairly high pain threshold; my GRS surgery was not a problem to me and I never have injections at the dentist. Half an hour before surgery I was given a jab of morphine and atropine in my thigh to dull the senses and give a dry mouth so that I would not want to keep swallowing. Immediately prior to surgery I was given a local anaesthetic to the anterior side of my neck with xylocaine and adrenaline.

My view of what took place was most effectively hidden by a blue plastic sheet which was draped over a bar running horizontally 12" above my face and the plastic was securely taped around my jawline. From then on I had to lie very still and could hear (but not feel) various sounds from the tools used. From time to time there were scratching, clipping and sizzling sounds and a slight smell of hot flesh as, I assume, various things were cauterised.

After about half an hour Dr Mahieu told me that my cartilage had calcified to a certain extent and that he could not push a needle through (not unexpected) and he would have to drill holes for the thread to pass through. This was done with a dentist's type drill. The nylon thread was then inserted and initially tightened. I was asked to make an extended ee... sound whicb to my amazement was really high pitched. As Dr Mahieu released the tension my pitch dropped back down to its former level. He said that he was very satisfied and would now pull it up again and tie it off permanently. When he had finished his work he inspected it internally by pushing an endoscope up my nose and down my throat to see that no stitches were visible and that the vocal folds were as they shou1d be. Again he said that it looked fine and he would now reduce what he called "the notch" (Adam’s Apple) with a rotary burr. He then handed over to his aasistant to stitch up the incision in my throat.

The endoscopy was probably the worst part as it made me feel I was choking but it was only quite brief. I was actually on the operating table for one and three quarter hours in total and was then put to bed far a couple of hours to recover. I was brought some light lunch (somewhat late in the day at 2.30pm} and then allowed to leave by taxi for my nearby hotel.

1 was told that I must not try to speak or even whisper for two days and then return to hospital far a check-up. If all was well, which fortunately it was, I could then go home to the UK. On the day of surgery I had great difficulty in swallowing but, nevertheless, managed some soup, a hot cross bun with jam and a dish of ice cream. I slept well and next morning was able to eat a good breakfast with swallowing much improved. I kept my neck covered with a chiffon scarf to avoid frightening Joe Public with the initially

rather angry looking bruising and swelling: the bruising faded quite quickly although I still have some swelling.

The stitches came out after eight days at the hands of my own GP's nurse. It was actually one continuous thread and I was told that it had to be mobilised by pulling at alternate ends and then withdrawn in one piece. The suture came out quite easily and painlessly and the scar is neat and unobtrusive. At this time it gives every indication that it will fade very quickly and hopefully be virtually invisible.

The average male frequency range is quoted by Dr Mahieu as being approx 98 to 131 Hz and the average female range 196 to 262 Hz. Prior to surgery my rnean pitch was measured at 133 Hz which is at the top of the male range. I am writing this article only ten days after surgery while it is still fresh in my mind. It is early days yet for me to know how my voice will be at the three months checkup. For two days following surgery I communicated with masses of little notes and on the third day I tried out my new voice. That is actually too exotic a description for the croaky frog noises that I could make. It sounded like the worst case of laryngitis ever recorded. However, I had fortunately been forewarned what to expect so it came as no real shock, (at least to me!)

In the intervening few days the voice has gradually grown stronger but at this time of writing is still a miserable monotone. I was told that anything from three to twelve months is usually needed for full recovery. I am under no illusions about the surgery being a magic wand and I know that patience and further speech therapy will be needed.

2) Voice Therapy in the Case of a Transsexual

By Meryle Kalra. First published in GEMSNEWS Number 8

This paper was designed to present and evaluate a therapeutic approach to the vocal rehabilitation of a transsexual. It was presented at the International Congress on Sexology, University of Quebec, Montreal, Canada, October 27-31, 1976. The goal was to raise the voice pitch of a 27 year old morphological male who became a female.

The male voice is about one octave lower than that of the female. The average normal range of the male voice lies between 100 Hz and 132 while the habitual pitch levels in normal females reported from study samples range between 142-256 Hz.

No specific data on the incidence of transsexualism have been compiled in Canada or the USA. However, the Erickson Foundation of New York estimates that 2000 people in the US have had sexual conversion up until 1975. Gender alteration male to female is four times more frequent than female to male. Hoenig and Kenna, (1973) found the incidence in England and Wales to be 1.51 transsexuals per 100,000 population. Approximately 1 male per 40,000 population and 1 female per 154,000 population, the male to female ratio being 3.41:1

Materials and methods

The subject, BL was a normally developed physiological male whose sexual identity at age 32 was altered to become that of a female. BL, the second son of 11 children, described herself as being close to her mother, having a strict, controlling father, she remembers feeling sensitive and expressing continuously the wish and desire to become a girl. After successive experiences as a homosexual, a female impersonator and transvestite, BL decided at 29 years to seek sexual identity change and become a

female. In 1969 hormone therapy was commenced while several months later sexual reassignment surgery was performed. At the time of her referral for voice therapy BL appeared feminine; however, the distinct male quality to the voice was the most likely characteristic to betray her masculinity. BL complained of being mistaken for a male over the telephone. At the time of her referral her vocal characteristics were judged subjectively to be: 1) male vocal quality; 2) poorly controlled pitch levels; 3) clavicular and shallow breathing patterns; 4) laryngeal tension; 5) absence of vocal resonance; 6) poorly controlled loudness which was associated with irregular pitch use. Without professional guidance the client had obvious difficulty in adjusting the male larynx to the functioning requirements of female larynx. At present no precise histological date describe the effects of oestrogen on the intrinsic muscle mass of the human larynx.

Therapeutic procedures

Voice therapy was administered over a three month period, once a week for approximately 45 minutes each session. Optimum pitch at this time was in the area of D sharp well below middle C at approximately 150Hz. Treatment was directed toward controlling intercostal and diaphragmatic muscle activity to reduce clavicular breathing patterns and lessening pharyngeal tension. Elevation of the optimum pitch to more appropriate and desirable pitch levels was achieved through exercises which reinforced resonance and maintained a balance between the vocal generator and supraglottal resonators. As new pitch levels were acquired, Foeschels' chewing method was used to increase anterior oral resonance. The first pitch level above optimum pitch was F below middle C at approximately 170Hz. Gradually the fundamental frequency of the voice was moved up the musical scale to G below middle C or approximately 220Hz and the therapeutic procedures were repeated. Analysis of data collected throughout the therapeutic process consisted of both subjective and objective measures.

Results

Subjective data contained a condensed therapy log as well as laryngological examinations during and after therapy to determine whether any structural changes had occurred to the client's vocal mechanism as a result of therapeutic procedures. Laryngological examination during the course of therapy described the normal configuration of the male larynx in size and appearance and indicated improved function of the crico-thyroid muscle two years post-therapy. No vocal strain or pathology had been induced by raising the client's original male pitch level to within a low average female pitch range. Optimum pitch had been obtained with maximum comfort for the client's laryngeal mechanism and integrated into the client's spontaneous speech patterns. Objective data was demonstrated using a KAY sonograph to determine the fundamental frequency through spectrographic print-outs of voice samples using narrow band widths (45Hz) and wide band widths analysis (300HZ).

Discussion and conclusion

The goal of this study was a) to prescribe a therapeutic model for altering the vocal pitch of a male transsexual, thereby creating a vocal quality more appropriate for a female, and b) to assess the efficacy of this model. Results indicate that in the initial period of therapy the subject exceeded the provided model on imitative speech tasks. At this time excessive laryngeal tension was evident and repeatedly the clinician had to re-establish correct breathing patterns and improve supraglottal resonance through chewing practice.

In the second recording, although laryngeal tension had been reduced, the client 'was unable to achieve a model of 193Hz introduced on imitative speech tasks. Although an increase in the habitual pitch between

the first two recordings could be demonstrated, spontaneous speech deviated from the model by minus 25Hz. Carry over into imitative tasks or transfer to spontaneous speech was not occurring.

For a period of four weeks therapy concentrated on improving carryover from imitative speech work at 193Hz to spontaneous speech. Spectrographic measures for spontaneous speech in the third recording showed the client had increased her habitual pitch to a level close to the stated mode. Her speech had become more functional and stabilized in everyday use. Laryngeal tension was less apparent during spontaneous speech, demonstrating an overall increase in the complementary use of the vocal generator and oral resonator. Improvement in vocal resonance appeared to be directly connected to accentuated anterior oral resonance which best accommodated this higher vocal pitch. The therapeutic success in this case appeared to be an important and significant factor contributing greatly to the improvement of the self-image of the patient. She now perceives herself more completely as a woman, and is perceived by others as a woman, which serves to enhance her self-image and reinforce her new gender identity.

3) Feminine Voice Techniques

A collection of practical suggestions and ideas for self help in the feminisation of the voice, developed by a group of male-to-female transsexuals within the Looking Glass Society. First published in 1997 and reproduced here with thanks to the Looking Glass Society.

Neither hormones nor genital surgery will ‘un-break’ a male voice, and voice-changing surgery is widely regarded as inadvisable, in addition to being at best only a partial solution. Thus, speech training is necessary in order to produce a satisfactory ‘female’' voice. At first, it may seem hard to concentrate on all the different facets of producing a feminine voice, and lapses will happen. The only solution is to practice and practice again until it gradually becomes second nature.

The Methods

1. Sing! To loosen-up the voice box, extend your pitch range, and help develop good control, it can be very helpful to choose a female vocalist who you like, preferably one with a relatively deep voice, and sing along. The musically-minded may also wish to perform singing exercises, such as singing scales.

2. Raise the position of the laryngeal cartilage. This raises your voice pitch and decreases the characteristic male resonance. (The laryngeal cartilage is the 'movable' piece of cartilage that you can feel rising if you place a hand on your throat and sing a rising scale (doh, re, mi, fa, sol, lah, ti, doh). The point of this is to try to gain a higher 'baseline' pitch than you have previously used, and then increase the pitch further when placing emphasis. For example you might decide that if you pitch the "doh" as your baseline male pitch raising your basic pitch to about "fa" or "so” would be sufficient. But do not overdo the pitch-raising: a squeaky, falsetto voice sounds very inappropriate on an adult woman. The pitch adjustment is a compromise - for the technically-minded you should aim for above 16OHz; if you have access to a musical instrument that's about the G below middle C. Of course, everyone starts out with a different original voice and some will be able to raise it more than others without sounding squeaky. You might find it slightly tiring on your voice-box at first, as you are unused to speaking in that register, but it should become comfortable with a little practice. If it does not, then you are probably trying to force your pitch up too high.

3. Partially open the glottis when speaking. The position of the glottis controls how much air passes over the vocal cords. When breathing rather than speaking, when whispering , or when producing an 'unvoiced' sound where the vocal cords do not vibrate, like 'hhh' or ‘sss'), the glottis is full open and

all the air bypasses the vocal cords. With the glottis firmly closed, all the air is forced over the vocal cords, producing a fully-voiced and typically male voiced sound. You need to try to find a 'semi-whispering' position that eliminates the fully-voiced sound with heavy resonance in the chest, and imparts a breathy quality to the voice. You can hear the difference between voiced and unvoiced sounds by comparing S and Z sounds (say 'sss' and 'zzz' , and feel how your vocal cords vibrate on the Z but not the S). You're trying to find a midpoint between an unvoiced (whispered) sound, and a fully-voiced 'male' sound. Try saying the word 'hay', and pay attention to how you change between the unvoiced H sound and the voiced A sound: say it very slowly ('hhhhhaaaay' and feel the change in the vocal cords as your voice slides from the unvoiced hhh sound to the voiced 'aaa' vowel sound. Then try to stop before you reach the full voiced point, and you should be producing a soft, breathy feminine) 'aaa' sound. Then try to learn to always use that half-open position for all voiced sounds. This is simply a matter of practice.

4. Place emphasis with pitch not volume : Upward intonation places emphasis. Men place emphasis in their speech by varying the loudness, but keep their pitch within a very narrow range; on the other hand women tend to keep their loudness much more constant but vary their pitch a great deal to express emphasis.

5. Speak slowly, enunciate clearly especially consonants at the beginning and end of words. Don’t mumble; clear voice requires fat big lip movements. On the whole, women enunciate much more clearly and precisely than men.

6. Pace your speech carefully. Start and end sentences slowly and gently; do not sound clipped. Do not swallow pronouns, articles or other little words at the beginning or end of sentences. Male speech tends to be characterised by what speech therapists call 'hard attack' - the first syllable is pronounced very hard, and quickly. Women usually start a sentence more softly.

7. Use appropriate content. Men and women tend to talk about the same things in different ways; what you say contains gender cues, just as much as how you say it. Women tend to concentrate more on thoughts and feelings, while men concentrate on objects and actions. Men generally use more 'short cuts', colloquialisms and bad language, too. A simple illustration is to imagine someone asking a friend if they are going to go for a drink after work. A male might say something like 'Coming down the pub?’ rather abrupt, using the minimum of words and concentrating on the desired action in a rather impersonal way. A woman might say 'Do you feel like going for a drink tonight?' : concentrating on her friend's feelings and desires, personal, and not abbreviated.

8. Pay attention to tongue position. The tongue is higher and flatter for female than for male. This gives 'dental' sounds (ones that involve the teeth, like T and D) a softer, breathier, almost sibilant quality in the female. Say 'tttt' in male mode then 'ssss'; find the halfway position, that is the female position for the letters T and D; likewise for a TH sound, etc. Use plenty of air to get a breathy sound.

9. Hold your mouth in the right shape. A slight smile helps, and is the 'resting' facial expression for a woman anyway. Rounder lips (a slight pout), and good lip movement, help produce a clearly enunciated voice.

10. Develop head resonance . One of the biggest problems facing TS women is, after learning to produce a soft, feminine voice, to then learn how to speak loudly when necessary without the voice returning to a masculine sound. Women gain loudness by using the cavities inside the head as a 'sounding box' whereas men use the chest. To gain a louder feminine voice, develop head resonance rather than

chest resonance - open your mouth a little more, use more air, and 'push' your voice up into your head.

11. Use Feedback. Record samples of your voice and listen to yourself. Read a passage of text, listen to yourself and keep practising. It can be helpful to actually read these notes aloud, practising each point as you read it. Then listen to yourself and successfully refine your voice.This information sheet is distributed by the Gender Trust and is intended as a basis for information only. The Gender Trust does not accept responsibility for the accuracy of any information contained in this sheet.